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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

KERNS, KEVIN P

ART UNIT

PAPER NUMBER

1793

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/537,808	<b>Applicant(s)</b> SHIRAISHI ET AL.	
	<b>Examiner</b> Kevin P. Kerns	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2008 and 03 July 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 14-16, 20 and 21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-16, 20 and 21 is/are rejected.
- 7) ☒ Claim(s) 14, 20 and 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The information disclosure statement filed October 25, 2007 fails to comply with 37 CFR 1.98(a)(1), which requires the following: (1) a list of all patents, publications, applications, or other information submitted for consideration by the Office; (2) U.S. patents and U.S. patent application publications listed in a section separately from citations of other documents; (3) the application number of the application in which the information disclosure statement is being submitted on each page of the list; (4) a column that provides a blank space next to each document to be considered, for the examiner's initials; and (5) a heading that clearly indicates that the list is an information disclosure statement. The information disclosure statement has been placed in the application file, but the information referred to therein has not been considered. In this instance, only the front page of the IDS of October 25, 2007 was received, but not the list of reference(s) to be considered by the examiner.

### ***Drawings***

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "t" (Figures 5 and 6). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet

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should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

3. Claims 14, 20, and 21 are objected to because of the following informalities: in the 3<sup>rd</sup> lines from the end of these claims, it is believed that the limitation "60 or 70%" should be changed to "60 to 70%" to indicate a range rather than fixed values. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

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under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 14-16, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 8-86324 in view of JP 7-232261 (complete translations were provided by the applicants in the Information Disclosure Statement dated June 7, 2005).

JP 8-86324 discloses a composite material member (see abstract and paragraphs [0013]-[0033] of translation), such as a lightweight compound brake disc (see Figure 4), as well as its method for its production (see Figures 1 and 2a), in which the composite material member and its method of manufacture include the steps of preparing a main material of aluminum or aluminum alloy (base 1) that is molded by casting; preparing a secondary material (surface layer 3 of a sliding surface 2) composed of a metallic material different from the main material 1 (in this instance, surfaces 2,3 are made of iron or steel); providing an intermediate porous material (in the form of a compressed and sintered laminated material 4 of either random or oriented condition to yield a three-dimensional structure (see paragraph [0020] of translation), including a one-sheet or a two-sheet laminating of compacted sponge-like steel of 2mm thickness or metal fiber materials of different porosities and having fiber diameters of 10 microns or more – see abstract; and paragraphs [0013], [0021], [0026], and [0030] of translation) on at least a portion of the boundary area between main material 1 and

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secondary material (2,3); and joining the secondary material (2,3) to the main material 1 by integrally casting (compression molding) the materials (1,2,3) to result in diffusion bonding between the materials at a predetermined volume rate of 70%, or porosity of 30% (see paragraphs [0021], [0022], and [0030] of translation). JP 8-86324 does not specifically disclose either of the claimed instances ("in the case of" as claimed) of the one-sheet porous material (single layer structure) has a volume rate of 30-60% (at 1-2mm thickness of porous material) or 20-60% (at >2mm thickness of porous material) or the two-sheet porous material (double layer structure) each has plate thicknesses of 0.5 mm while having volume rates of 60 or (to) 70%, and 20%, respectively.

However, JP 7-232261 (see abstract; paragraphs [0014]-[0028] and [0083]-[0086] of translation; and Figures 1 and 4-6) discloses a clad metal material and its method of production, in which the clad material member and its method of manufacture include the steps of preparing a 1<sup>st</sup> metallic material (magnetic metal 2, such as iron, steels, and nickel) and a 2<sup>nd</sup> metallic material (highly thermally-conductive metal, such as aluminum and aluminum alloys); and providing a porous intermediate layer 1 in the form of powders or fibers with diameters of 5-500 microns (see paragraph [0018] of translation), such that JP 7-232261 further discloses that a desirable volume rate is 20-60% (paragraph [0023] of translation) and discloses (in Example 15 of paragraph [0083] of translation) a method of producing a clad metal material using a 1mm thickness porous material of mean particle diameter of 150 microns that results in a volume rate of 60%, with these features being advantageous for obtaining outstanding bonding

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strength with increased thermal efficiency (abstract; and paragraphs [0023] and [0086] of translation).

With further regard to the applicants' claimed ranges of volume rates in independent claims 14, 20, and 21, one of ordinary skill in the art would have recognized that the ranges of volume rates would be subject to determination by routine experimentation and process optimization, in order to obtain desired physical properties of the composite metal member, such as bonding strength, increased thermal efficiency etc., with the desirability of a portion of these properties being expressly disclosed in the teachings of JP 7-232261. As a result, it would have been obvious to one of ordinary skill in the art at the time of the invention to choose the instantly claimed ranges through process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See *In re Boesch*, 205 USPQ 215 (CCPA 1980).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the composite material member and its method for its production, as disclosed by JP 8-86324, by using the single layer structure of porous material of 1mm thickness with a resulting volume rate of 60%, as taught by JP 7-232261, in order to obtain outstanding bonding strength with increased thermal efficiency (JP 7-232261; abstract; and paragraphs [0023] and [0086] of translation).

***Response to Arguments***

7. The examiner acknowledges the applicants' after final amendment entered upon filing of the request for continued examination, which were received by the USPTO on June 6, 2008 and July 3, 2008, respectively. Upon review, new objections to the drawings and claims are raised in above sections 2 and 3. Regarding above section 1, it appears as though the applicants submitted an Information Disclosure Statement dated October 25, 2007, but this application only includes the front page titled "Supplemental Information Disclosure Statement" without a list of the reference(s). The applicants are kindly requested to provide a copy of this list of reference(s) in their next communication. Claims 14-16, 20, and 21 remain under consideration in the application.

8. Applicants' arguments with respect to claims 14-16, 20, and 21 have been considered but are moot in view of the new ground(s) of rejection.

With regard to the applicants' remarks/arguments on pages 6-9 of the after final amendment of June 6, 2008, and in view of the newly amended claims, JP 7-232261 is provided in the above 35 USC 103(a) rejections (section 6) to remedy the deficiencies of JP 8-86324, which was previously the only reference applied as grounds of rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kevin P. Kerns whose telephone number is



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(571)272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on (571) 272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kevin P. Kerns  
Primary Examiner  
Art Unit 1793

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Primary Examiner, Art Unit 1793  
October 19, 2008